Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

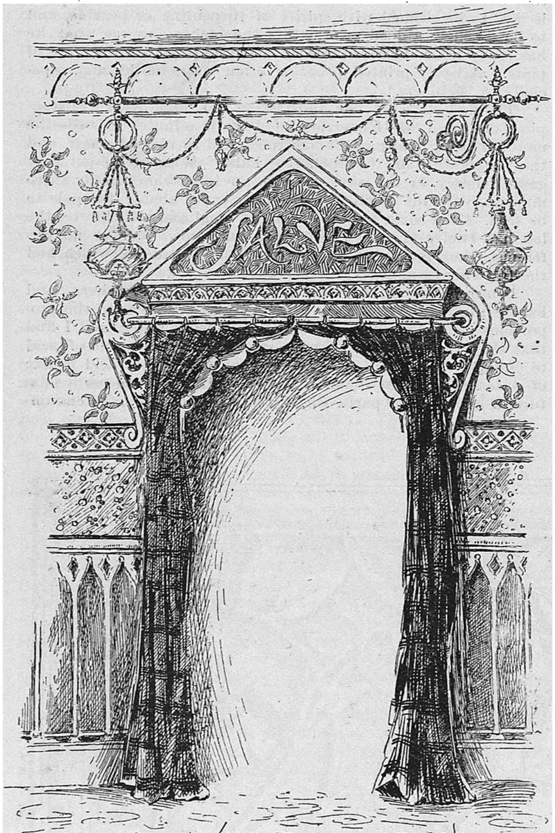
Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

stances. Nitric acid is very similar to nitrous as far as etching is concerned, but is generally considered rather more uncertain in its action. The mordant that I have mentioned (ten parts of nitrous acid to nine of water) usually causes the lines to become grey or frosted in appearance in about half a minute; in four or five minutes the most delicate parts will be sufficiently bitten, and in twenty or thirty minutes of immersion the biting-in should be completed. Should the frosted appearance caused by the small bubbles become general over the plate in less than half a minute the action is too rapid to be safely trusted. The plate must be taken out of the bath and some water added. If, on the other hand, the appearance mentioned is not visible at the half minute, pure acid must be added till the requisite strength is reached.

If Mr. Haden's bath is used, a quarter of an hour is required for the most delicate lines, and about six hours for the deepest; but most etchers who use his mordant find it too slow, and modify it to suit themselves by the addition of more acid. Dr. Evershed adds also a small quantity of sal ammoniac, or sometimes common salt. At one time I used Mr. Haden's mordant regularly, and to render its action very uniform I kept it always at about the temperature of 70° Fahr. by means of the iron plate with gas jets beneath.

My reason for preferring a quicker mordant is that, by constant watching, one can see how the acid is working, and proceed to stop-out accordingly. There are so many causes which may render the time test inadequate, that this is really of more importance than may at first appear. For instance, the acid works more rapidly in hot weather, and the varying density of different plates affects its action. Again, the quality of acid supplied by different chemists will be found to vary. After a bath has been used, the acid is of course weakened by the presence of the copper it holds in solution, and as few etchers use a fresh bath for every plate they do, it has to be strengthened by the addition of a small quantity of pure acid. This quantity has to be guessed at, so that the strength of the bath can never afterwards be accurately computed. Another fact which upsets rigid time calculations is that isolated lines are bitten much more slowly than those which are closer together. The reason is said to be that the temperature rises with the action of the acid, and that the hightened temperature thus produced where the lines are numerous intensifies the action of the acid on that part of the plate. Where biting-in is thus proceeding at a rapid rate, the amount of gas bubbles that keep forming enables the etcher to gauge the action of the acid. The plan I am recommending has the advantage that he who uses it increases his mastery of the method every fresh plate he does, while he who trusts to time tests is, after years of experience, liable to serious disappointment, owing, perhaps, to a chemist's mistake.



HALL-WAY DECORATION AND ENTRANCE TO RECEPTION ROOM. DESIGNED BY ROBERT Y. BARROW. N.Y.

Before biting-in a plate of any importance, however, it is not a bad plan for a beginner to test his acid bath on a very small plate with a few lines scribbled on it, and noting the effect, say, of five, ten, and fifteen minutes' immersion. This will be found of some use if regarded as an approximation to what will happen with another plate, but must not be looked upon as a substitute for watchfulness during the process. Owing to the timidity of inexperience there is usually more danger of the beginner not biting-in his plate enough than of his overdoing it; let him take courage, however, when he learns that it is generally much easier to rectify a plate that has been overbitten than one underbitten.

(TO BE CONTINUED.)

VENETIAN MIRRORS.

As early as 1507 it was finally discovered how to replace the polished metal plates which had till then served as mirrors, by plates of ornamental glass with a metallic leaf fastened on the back. The Germans and Flemings had been more advanced for nearly a century, but at Venice they had gone back to the metal plates, when, in 1507, two inhabitants of Murano—Andrea and Domenico del Gallo, sons of Angelo—petitioned the Council of Ten for a monopoly of mirror glass for twenty-five years over the whole territory of the republic, and for permission to keep their fires lighted during the two months and a half when the fires of Murano were bound to be let out. This was the birth of an enormous industry, that of Venetian mirrors, an industry of the greatest importance even till recent times, and one which the most advanced nations have tried to appropriate.

THE first use to which glass was applied in Venice was in the preparation of enamel for the master-workers in mosaic, and from the eleventh to the fourteenth century this was the staple of the manufacture at Murano. It is evident to us that the Venetians had originally borrowed their methods from the Greeds, but in making these methods their own had considerably altered them. They made plates, or thin cakes of enamel, in black, brown, or red glass, about six inches across and a third of an inch thick. On this cake they put a square of gold leaf, and to protect the gold covered it with an extremely thin layer of glass, which made a glaze that both protected and gave lustre to the gold. The dividing of this cake into small cubes was left to the mosaic-workers, who cut them by a special process according as they were wanted. This, as we have said, was the most frequent use found for these cakes; but sometimes, and, indeed, very often, they were used for the incrustation of pulpits, altars, ambos, columns, pedestals, friezes, and tombs. Examples of this are very numerous all over Italy from the twelfth to the fourteenth century, but the most beautiful are to be found worked out by various architects at Ravenna, Rome, and at Florence.

PROFESSOR BLAKE thus describes a number of articles made of murrhine glass, which he had an opportunity of inspecting:—"There were silver goblets, or cups, with elliptical perforations, half an inch long at the sides, through which an inner lining of sapphire or ruby glass protrudes like gems. The whole surface seems set with round cut and polished sapphires or rubies. The glass lining of the silver is perfect throughout, but bulges and protrudes through the openings. It is evident that the silver goblet is first made and polished, with the openings left in the sides, and then, being warmed, is lined with glass by blowing a bulb inside of it, the lining protruding through the spaces. The linings were, of course, very tight and close fitting, and could not be removed without breaking or melting the silver. These cups are copied from an original in the British Museum. Sapphires, emeralds, amethysts, and rubies are thus imitated. A cup in imitation of onyx—a copy of one in the treasury of St. Mark's—was mounted in silver by Castellani; another, also copied from one in St. Mark's treasury, and mounted in silver by Castellani, has the colors of topaz and emerald. A *patera* in murrhine colors, white, blue and yellow, is a *fac simile* of the original in the National Museum at Naples."